made by first ashing each lung and determining the silica content colorimetrically. The weights of dust were calculated by reference to the silica content of the airborne dusts, similarly determined, after allowing for the silica content of unexposed rat lungs. The values are presented in TABLE 2.

The silica content of the size-selected dust samples collected from the airborne clouds of chrysotile, crocidolite, amosite, and powdered glass were 40, 50, 51, and 78 per cent, respectively, and the lungs of the unexposed control rats contained 0.11 mg. silica (range 0.05 – 0.15 mg.). There were small differences between the airborne dust concentrations. The sampling rate of the G.T.P. was 100 ml./min., which approximates the minute volume of the rat, and the net uptake of the dusts over the exposure period can usefully be compared by expressing the weight of dust found in the lungs of the rats killed one day after the last exposure as a percentage of the cumulative weight of dust collected by the G.T.P. The comparative uptakes of the four ducts are shown in TABLE 3. The uptake of the chrysotile is only about one-third that of the crocidolite and amosite; the uptake of the powdered glass is twice as great.

TABLE 3.
THE UPTAKE OF DUSTS IN THE RAT LUNGS

Dust	Chrysotile	Crocidolite	Amosite	Glass
G.T.P. mg.	36.4	38.9	41.8	43.4
Lung mg.	0.83	2.9	3.7	6.8
Lung / G.T.P. × 100	2.3	7.5	8.8	15.8

The uptake of dust is the end product of continuous deposition and elimination of dust during the inhalation period. To determine the comparative elimination rates the average weights of the dusts found in the lungs of the rats, male and female, after the three survival times have been plotted on logarithmic-linear ordinates in FIGURE 1. The elimination rates are approximately exponential, and the slope of the weighted regression line for each dust gives the elimination rate. The slopes for glass, amosite, and crocidolite are [illegible] and [illegible] respectively, which are not significantly different at the 5 per cent level of significance. The slope of the line for chrysotile is –0.26, practically three times greater. The differences in the weight uptake of the three asbestos dusts in the lung at the end of the period of exposure can thus be explained by reference to the elimination rate, and the weights of dust found are quite compatible

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